PC Accessories

ADAM 6521

5-Port Industrial 10/100 Mbps
Ethernet Switch with Fiber Port

USER'S MANUAL

VER. 1.1 • JAN 2002

No part of this manual may be reproduced without permission

CyberResearch®, Inc.

www.cyberresearch.com

25 Business Park Dr., Branford, CT 06405 USA

203-483-8815 (9am to 5pm EST) FAX: 203-483-9024

©Copyright 2002
All Rights Reserved.

January 2002

The information in this document is subject to change without prior notice in order to improve reliability, design, and function and does not represent a commitment on the part of CyberResearch, Inc.

In no event will CyberResearch, Inc. be liable for direct, indirect, special, incidental, or consequential damages arising out of the use of or inability to use the product or documentation, even if advised of the possibility of such damages.

This document contains proprietary information protected by copyright. All rights are reserved. No part of this manual may be reproduced by any mechanical, electronic, or other means in any form without prior written permission of CyberResearch, Inc.

Trademarks

"CyberResearch," and "ADAM 6521," are trademarks of CyberResearch, Inc. Other product names mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective companies.

• NOTICE •

CyberResearch, Inc. does not authorize any CyberResearch product for use in life support systems, medical equipment, and/or medical devices without the written approval of the President of CyberResearch, Inc. Life support devices and systems are devices or systems which are intended for surgical implantation into the body, or to support or sustain life and whose failure to perform can be reasonably expected to result in injury. Other medical equipment includes devices used for monitoring, data acquisition, modification, or notification purposes in relation to life support, life sustaining, or vital statistic recording. CyberResearch products are not designed with the components required, are not subject to the testing required, and are not submitted to the certification required to ensure a level of reliability appropriate for the treatment and diagnosis of humans.

Intentionally Blank

 ©Copyright 2002 *CyberResearch, Inc.*

Contents

Chapter 1: Overview 1

1.1 Introduction 2

1.2 Features 4

1.3 Specification 4

1.4 Package Checklist 5

Chapter 2: Installation 7

2.1 Top / Front / Rear View 8

2.2 Connecting the Hardware 10

2.2.1 Choosing a Location 10

2.3 Network Connection 13

2.3.1 Connection to the devices 13

2.3.2 Connection to other Hubs or Switch 13

2.3.3 Connection to fiber network 13

2.3.4 Power Connection 14

Figures

Figure 2-1 ADAM 6521—Top Panel 9
Figure 2-2 ADAM 6521—Front Panel 9
Figure 2-3 ADAM 6521—Rear Panel 9
Figure 2-4 Panel Mounting 10
Figure 2-5 Din Rail Mounting 11
Figure 2-6 Piggyback Stack 12

©Copyright 2002 *CyberResearch, Inc.*

Tables

Table 2-1 ADAM 6521 LED Definition 8

 ©Copyright 2002 *CyberResearch, Inc.*

Chapter 1
Overview

1.1 Introduction

The ADAM 6521 is a five ports industrial-grade 10/100 Mbps Ethernet Switch with Fiber port. It allows you to expand your industrial network fast and cost-effectively. The ADAM 6521 is a 5-port 10/100 Mbps Ethernet switch with Fiber port, which converts between 10/100Base-TX and 100Base-FX segments of the same network. Moreover, ADAM 6521 supports auto crossover to make it flexible networking environment, connecting to network by any port.

The ADAM 6521 provides three ways to be fixed in any industrial environments: DIN Rail, panel, piggyback mounting. The ADAM 6521 also supplied +10~30 VDC operating voltage over the terminal block. In addition, the operating temperature of ADAM 6521 is from -10 ~ 65°C. The above functions makes the ADAM 6521 more stable and reliable. Thus, the ADAM 6521 is especially suitable for industrial environment with Ethernet networking: semi-conductor factory, inventory, conveyer and more.

Flexible network connecting

ADAM 6521 is a 5-port Ethernet switch with fiber port for industry, it supports MDI/MDI-X auto crossover.

The ADAM 6521 consists of one fiber and four RJ-45 ports. With fiber optic, it transmits speed up to 100 Mbps and you can prevent noise interference from the system and transmission distance up to 2 km.

ADAM 6521 supports auto crossover to make it flexible networking environment.

©Copyright 2002 CyberResearch, Inc.

With the function, ADAM 6521 any port can uplink to switch or hub devices by either straight through cable or crossover cable.Unlike other switches , it provides users with easy and flexible network connecting.

Flexible mounting

Due to its versatility and innovative design, the ADAM 6521 can be fixed in three ways: DIN rail, panel and piggyback mounting.

Advanced surge protection for power input

The ADAM 6521 supports wide-range voltage +10 ~ 30 V_{DC}. Besides, it also provides 3000 V_{DC} surge protection to protect it from being damaged by over-voltage. That makes the system more safe and reliable.

Wide-range operating temperature

The operating temperature of ADAM 6521 is from -10 ~ 65 °C. That makes the ADAM 6521 been used in most harsh environment.

Easy to trouble-shooting

There are 6 LED indicators supplied that aid trouble-shooting in ADAM 6521. Each port has a pair of LEDs to indicate link status and port activity. That makes users easily to indicate , link status, power failure and data receipt for on-site diagnostics.

1.2 Features

- Supports 10/100 Base-TX and 100 Base-FX network
- Supports full/half duplex flow control
- Supports Integrated Loop-up engine
- Supports MDI/MDI-X auto crossover
- Provides broadcast storm protection
- Supports +10 ~ 30 V_{DC} voltage
- Provides robust mountings: DIN rail, panel, piggyback
- Supports operating temperature from -10 °C ~ 65 °C

1.3 Specification

- Compatibility: IEEE 802.3, IEEE 802.3u
- Interface:

  Network: 10/100Base-T & 100Base-FX standard
- Port: 4 x 10/100M bps (RJ-45), 1 x 100M bps (Fiber)
- Connector: 4 x RJ-45 & 1 x SC Fiber
- Fiber Mode: Multi Mode Fiber (MMF)
- Fiber Standards (Core/Clad): 50/125, 62.5/125 um
- Wavelength: 1300 nm
- Surge protection (Power): 3000 V_{DC}
- LED: power, 10/100 Mbps
- Transmission Distance (Fiber): 2000 m
- Power Requirements: unregulated 10 to 30 V_{DC}
- Power Consumption: 3.5 W

©Copyright 2002 *CyberResearch, Inc.*

- Case: ABS with captive mounting hardware
- Placement: DIN-rail, panel mounting, piggyback stack
- Operating Temperature: -10 to 65°C
- Storage Temperature: -20 to 80°C
- Operating Humidity: 20 to 95% (non-condensing)
- Storage Humidity: 0 to 95% (non-condensing)

1.4 Package Checklist

- ADAM 6521
- ADAM 6521 Manual
- NYLON Din-rail Mounting Adapter
- SECC panel mounting bracket

 ©Copyright 2002 *CyberResearch, Inc.*

Chapter 2
Installation

In this chapter, you will be given an overview of the ADAM-6521 hardware installation procedures.

2.1 Top / Front / Rear View

There are six network status LEDs located on the top panel of ADAM 6521, each with its own specific function.

LED	Color	Description
Power	Green	Power is On
	Off	Power is Off
Link (100BASE-FX)	Green	Link to 100 Mbps
	Off	Not Networking
100/10M (Port 1)	Green	Link to 10Mbps
	Orange	Link to 100Mbps
	Off	Not Networking
100/10M (Port 2)	Green	Link to 10Mbps
	Orange	Link to 100Mbps
	Off	Not Networking
100/10M (Port 3)	Green	Link to 10Mbps
	Orange	Link to 100Mbps
	Off	Not Networking
100/10M (Port 4)	Green	Link to 10Mbps
	Orange	Link to 100Mbps
	Off	Not Networking

Table2-1: ADAM 6521 LED Definition

 ©Copyright 2002 *CyberResearch, Inc.*

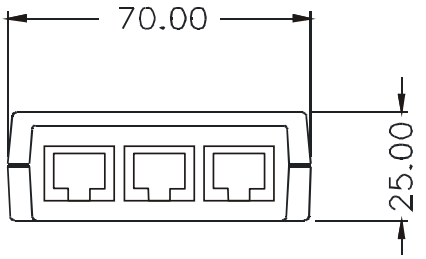


Figure 2-1 ADAM 6521—Top Panel

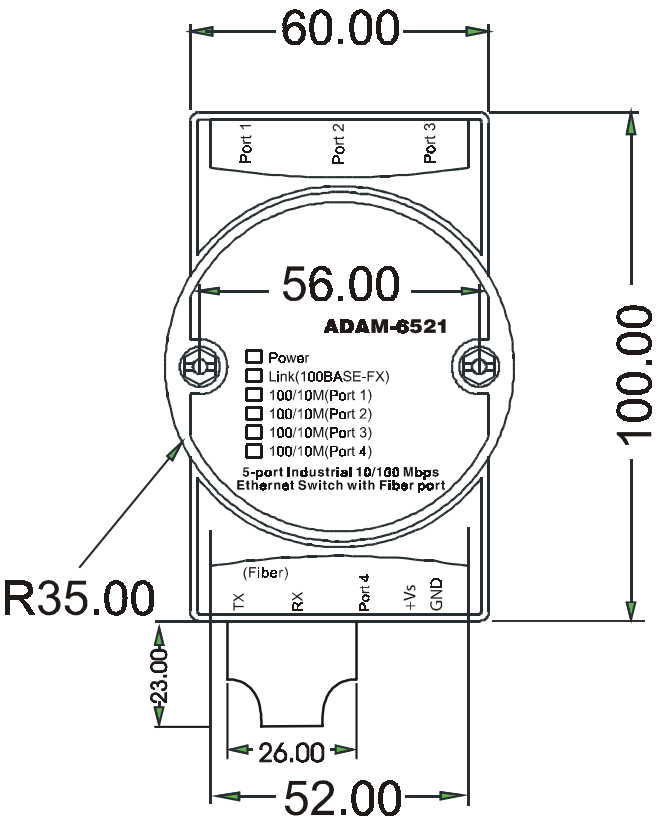


Figure 2-2 ADAM 6521—Front Panel

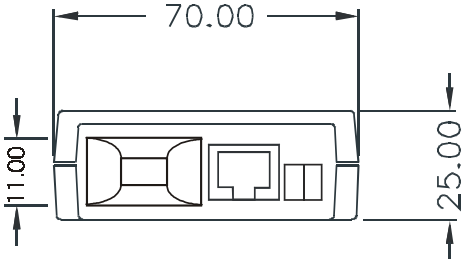


Figure 2-3 ADAM 6521—Rear Panel

2.2 Connecting the Hardware

Next, we will explain how to find a proper location for your ADAM 6521, and then explain how to connect to the network, hook up the power cable, and connect to the ADAM 6521 Ethernet port.

2.2.1 Choosing a Location

Due to its versatility and innovative design, the ADAM 6521 can be:

• fixed to a panel mount

• fixed to a DIN Rail.

• Piggyback Stack

Panel Mounting

The ADAM 6521 can be attached to a wall using the included metal brackets. Each bracket comes with four screws; first attach the brackets to the bottom of the ADAM 6521. Next, screw

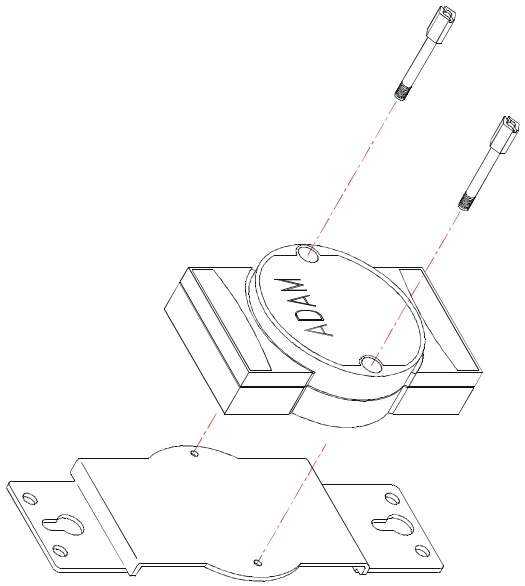


Figure 2-4 Panel Mounting

 ©Copyright 2002 CyberResearch, Inc.

each bracket to a wall.

DIN Rail Mounting

You can mount the ADAM 6521 on a standard

DIN Rail. First, using two screws, attach the metal plate to the DIN Rail bracket. Because the screw heads are beveled, the tops of the screws will be flush with the metal plate. Din Rail Mounting Brackets-Orientation of Metal Plates

You can now screw the metal plate with the DIN rail bracket assembly to the bottom of the server is a more convenient way.

Next, use the remaining screws to put the metal plate on the bottom of the ADAM 6521.

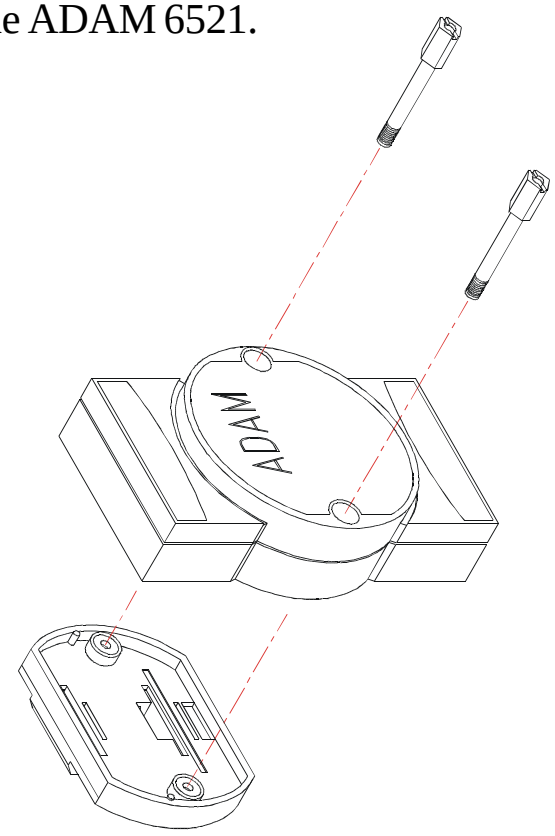


Figure 2-5 Din Rail Mounting

Piggyback Stack

ADAM 6521 can be stacked as seen in the figure below.

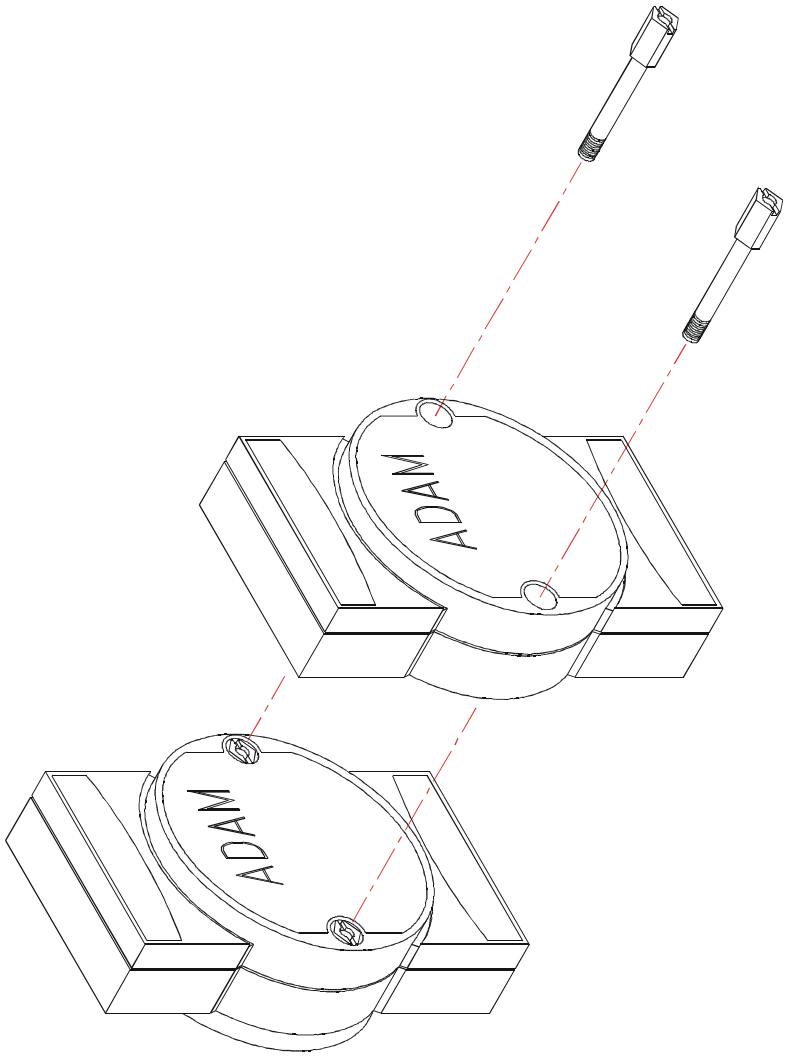


Figure2-6 Piggyback Stack

©Copyright 2002 *CyberResearch, Inc.*

2.3 Network Connection

2.3.1 Connection to the devices

The ADAM 6521 consists of one fiber and four RJ-45 ports.

Each of the switch's twisted-pair ports can be used to connect a station or other device. Use a straight-through twisted-pair cable with RJ-45 connectors on both ends. The twisted-pair cable extended from a twisted-pair port is called a “twisted-pair segment,” and it can be up to 100 meters long. You can connect any RJ-45 (MDI-X) station port on the switch to any device that uses a standard network interface such as a workstation or server.

2.3.2 Connection to other Hubs or Switch

ADAM 6521 has 4 RJ-45 ports that support connection to 10Mbps Ethernet or 100Mbps Fast Ethernet, and half or full-duplex operation. ADAM 6521 can be connected to other hub or switch via a two-pair straight through cable or crossover cable. The connection can be made from ADAM 6521 any port (MDI-X) to other Hub or Switch either MDI-X port or uplink MDI port.

ADAM 6521 supports auto crossover to make users connect networking more easily and flexibly. You can connect any RJ-45 (MDI-X) station port on the switch to any device such as a switch or a bridge or router .

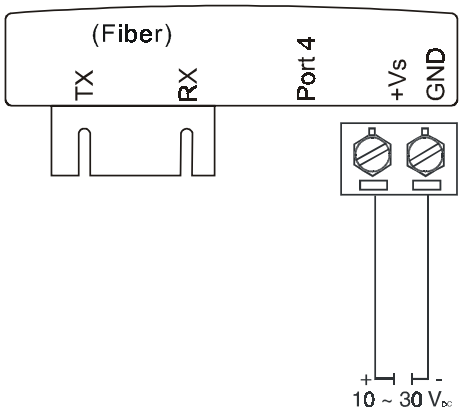
2.3.3 Connection to fiber network

Conneting to fiber network segment with two bud fiber. You can use fiber standards either 50/125 um or 62.5/125um (Core/Clad).With fiber optic, it transmits speed up to 100 Mbps and you can prevent noise interference from the system and transmission distance up to 2 km.

2.3.4 Power Connection

You should take the following steps to connect ADAM 6521 power.

1. Connect the power cable to 2-pin connector
2. Connect power cable to power adapter



Note: Please plug in a dust cover of fiber port to prevent from dust as you don't use fiber port.

©Copyright 2002 *CyberResearch, Inc.*

Product Service

Diagnosis and Debug

CyberResearch, Inc. maintains technical support lines staffed by experienced Applications Engineers and Technicians. There is no charge to call and we will return your call promptly if it is received while our lines are busy. Most problems encountered with data acquisition products can be solved over the phone. Signal connections and programming are the two most common sources of difficulty. CyberResearch support personnel can help you solve these problems, especially if you are prepared for the call.

To ensure your call's overall success and expediency:

1) Have the phone close to the PC so you can conveniently and quickly take action that the Applications Engineer might suggest.
2) Be prepared to open your PC, remove boards, report back-switch or jumper settings, and possibly change settings before reinstalling the modules.
3) Have a volt meter handy to take measurements of the signals you are trying to measure as well as the signals on the board, module, or power supply.
4) Isolate problem areas that are not working as you expected.
5) Have the source code to the program you are having trouble with available so that preceding and prerequisite modes can be referenced and discussed.
6) Have the manual at hand. Also have the product's utility disks and any other relevant disks nearby so programs and version numbers can be checked.

Preparation will facilitate the diagnosis procedure, save you time, and avoid repeated calls. Here are a few preliminary actions you can take before you call which may solve some of the more common problems:

1) Check the PC-bus power and any power supply signals.
2) Check the voltage level of the signal between SIGNAL HIGH and SIGNAL LOW, or SIGNAL+ and SIGNAL– . It CANNOT exceed the full scale range of the board.
3) Check the other boards in your PC or modules on the network for address and interrupt conflicts.
4) Refer to the example programs as a baseline for comparing code.

Intentionally Blank

 ©Copyright 2002 *CyberResearch, Inc.*

Warranty Notice

CyberResearch, Inc. warrants that this equipment as furnished will be free from defects in material and workmanship for a period of one year from the confirmed date of purchase by the original buyer and that upon written notice of any such defect, CyberResearch, Inc. will, at its option, repair or replace the defective item under the terms of this warranty, subject to the provisions and specific exclusions listed herein.

This warranty shall not apply to equipment that has been previously repaired or altered outside our plant in any way which may, in the judgment of the manufacturer, affect its reliability. Nor will it apply if the equipment has been used in a manner exceeding or inconsistent with its specifications or if the serial number has been removed.

CyberResearch, Inc. does not assume any liability for consequential damages as a result from our products uses, and in any event our liability shall not exceed the original selling price of the equipment.

The equipment warranty shall constitute the sole and exclusive remedy of any Buyer of Seller equipment and the sole and exclusive liability of the Seller, its successors or assigns, in connection with equipment purchased and in lieu of all other warranties expressed implied or statutory, including, but not limited to, any implied warranty of merchant ability or fitness and all other obligations or liabilities of seller, its successors or assigns.

The equipment must be returned postage prepaid. Package it securely and insure it. You will be charged for parts and labor if the warranty period has expired.

Returns and RMAs

If a CyberResearch product has been diagnosed as being non-functional, is visibly damaged, or must be returned for any other reason, please call for an assigned RMA number. The RMA number is a key piece of information that lets us track and process returned merchandise with the fastest possible turnaround time.

PLEASE CALL FOR AN RMA NUMBER!

Packages returned without an RMA number will be refused!

In most cases, a returned package will be refused at the receiving dock if its contents are not known. The RMA number allows us to reference the history of returned products and determine if they are meeting your application's requirements. When you call customer service for your RMA number, you will be asked to provide information about the product you are returning, your address, and a contact person at your organization.

Please make sure that the RMA number is prominently displayed on the outside of the box.

• Thank You •

Intentionally Blank

 ©Copyright 2002 *CyberResearch, Inc.*

CyberResearch, Inc.
25 Business Park Drive
Branford, CT 06405 USA
P: (203) 483-8815; F: (203) 483-9024
www.cyberresearch.com